

A follow-up study on the psychological health, social support, and rearing behavior of left-behind children.

Haiyan Xing^{1*}, Wei Yu²

¹Department of Nursing, School of Medicine, Shaoxing University, Zhejiang Province, P.R. China

²Institute of Epidemiology, Shaoxing Keqiao District Center for Disease Control and Prevention, Zhejiang Province, P.R. China

Abstract

The purpose of this study is to examine the change of psychological health, social support and rearing behaviour between left-behind children (LBC) and non-left-behind children (NLBC), and to analyze their correlations in the city of Shaoxing, China. By stratified and cluster sampling, 83 LBC and 119 NLBC had completed three consecutive years of follow-up investigation. Repeated measures of analysis of variance were performed to assess and compare the change of psychological health, social support, and rearing behavior between LBC and NLBC. The results showed that there was significant difference in change of psychosocial health between the two groups (decreasing in LBC, increasing in NLBC). There were no significant differences in social support and rearing behaviour among different time between LBC and NLBC, however, general support, subject support, support utilization and emotional warmth gradually increased in NLBC with no significant change in LBC. Psychological health positively correlated with social support (except for objective support) and emotional warmth and correlated negatively with rejection or overprotection in LBC. LBC suffer significant impairment in psychological health. Compared with the rising trend of NLBC, psychological health of LBC saw a decreasing trend over time. Psychological health may be affected by social support and rearing behaviour.

Keywords: Psychological health, Social support, Rearing behaviour, Left-behind children, Follow-up study.

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Introduction

Due to geographical and historical reasons, China's economic development in different regions was uneven, and there were certain differences in education, medical care, and transportation between urban and rural areas. Under the rapid development of the market economy, a large number of rural surplus laborer's left their hometowns to work for better living conditions elsewhere. However, due to restrictions on household registration system, education policy, housing conditions, and so on, they had to leave their children in the countryside under the care of relatives and friends, which led to the left-behind children (LBC) question [1].

Those children left in the rural areas while their parents had gone out to look for a job in city were typical representatives of a socio-economically disadvantaged group [2]. Primary and secondary school students were in a period of rapid development of their bodies and minds. They had their own understanding of their own changes and interpersonal relationships, which also brought some growing troubles. However, due to the guardians of LBC spending less time with them and losing track of their emotional and psychological changes, LBC lacked opportunities to communicate with their parents, which was not good for their children's psychology health [3].

In 2008, the National Women's Federation released the National Rural Left-behind Children Survey Report: Rural LBC were separated from their parents for a long time, not only lacking family ties, but also, prone to psychological barriers in the face

of self-development, learning stress and interpersonal problems, lack of protection in education and security, and were more prone to accidental injuries [4]. The psychological problems of LBC mainly included lack of self-confidence, self-enclosed, lack of correct self-awareness, emotional instability, strong loneliness and so on [1,5]. The present survey found that these children had experienced problems of various degrees in personal safety, learning, morality and psychological development. Their teachers reported that they had more troubles in daily performance, learning, moral behavior and emotion. The self-report from these students also showed that they had significantly poorer interpersonal relations and self-confidence than those who lived with their parents, but more remarkable in loneliness, social anxiety and academic adaptation [6].

Most of these investigations showed that the main influential factors to children's mental health included personality trait, family rearing behavior, family relationship, school education, social network, coping style and so on [7-10]. There was significant positive correlation between social support and psychological health in LBC [9-12]. The family environment, family upbringing style and personality traits had significant effect on the adolescent's mental disorder [13]. The parenting style reported by the subject was an important pathogenic factor as well [14,15].

At present, most of the research on psychological health in LBC is cross-sectional descriptive research or horizontal comparative study. There are few longitudinal tracking studies to investigate

the variation of psychological health with time. Therefore, the main aim of this study was to explore the variation in psychological health, social support and rearing behaviour over time in LBC and compare them with NLBC; and also, to analyze their correlations at different times in LBC.

Materials and Methods

Subjects and procedure

Data were obtained from three surveys conducted from 2014 to 2016. The target population comprised of left-behind children and non-left-behind children from Chinese primary school adolescents aged 10-13, who were randomly selected by stratified and cluster sampling technique. At first, three stratifications were divided by economic level in Keqiao district of Shaoxing city (4, 8, 4 towns or streets respectively). Over 80 percent of LBC lived in the third stratification towns, including Jidong, Wangtan, Pingshui and Xialv, so we randomly chose two of them, Wangtan and Xialv to survey. Then, two primary schools were selected from each town, and two classes of students in grade four (since the questionnaire should be completed independently and could be follow-up), were drawn in every school, including subsamples classified as LBC and NLBC. In each class, all of the students were recruited on the same day into the study. We got 202 valid questionnaires after three consecutive years of follow-up investigation.

For study purpose, LBC were defined as children who stayed at home with extended family members when their parents or one parent relocated elsewhere to work for at least six months. The control group in this study comprised of NLBC, whose parents worked and lived in the same rural area.

Measure of psychosocial health, social support, and rearing behavior

Psychosocial health was measured by The Pediatric Quality of Life Inventory Version 4.0 (PedsQL™ 4.0) Generic Core Scales. The PedsQL™ 4.0 is a 23-item questionnaire with 4 domains: physical health (8 items), emotional functioning (5 items), social functioning (5 items) and school functioning (5 items) [16]. Within the scales, all items are in a 5-point response scale (ranging from never a problem to almost always a problem), all are reverse-scored, and transformed to a 0-100 scale [17]. The physical health summary score comprised of the physical function scale, and the psychosocial health summary score comprised of the emotional, social, and school functioning scales [18]. The scale was translated to Chinese and validated previously, the internal consistency reliability for Total Scale Score (Cronbach's $\alpha=0.90$), Psychosocial Health Summary Score ($\alpha=0.89$) were excellent [19]. The psychosocial health summary score represents the level of psychosocial health. A higher score indicates better psychosocial health.

Social support was measured by the Social Support Rating Scale (SSRS). The SSRS was first reported by Xiao in 1994, consist of 10 items in 3 domains: objective support (3 items), subjective support (4 items), and support utilization (3 items), had been confirmed to have good reliability and validity (Cronbach's $\alpha=0.89$, test-retest reliability= 0.92) and was appropriate for the Chinese population [20,21]. The general support score is the

total score from the three domains. A higher score represents more social support [20].

Short-Egna Minnen av Barndoms Uppfostran Chinese version (s-EMBU-c) was used to measure rearing behaviors. The s-EMBU-c consists of 23 items in three domains: rejection (7 items), emotional warmth (7 items) and overprotection (9 items), which was developed from the original 81-items version [22,23]. The s-EMBU-c had been confirmed to have good reliability and validity (Cronbach's $\alpha=0.74\sim0.84$, test-retest reliability = $0.70\sim0.81$, split-half reliability = $0.73\sim0.84$) [22]. Because parents of left-behind children did not live with them for a long time, guardian here could be a father, mother, grandfather, grandmother, or even others.

Statistical Analysis

Statistical analyses were performed using SPSS version 18.0 software, including independent-samples t-test for age, Chi-square test for gender. Repeated measures analysis of variance was performed to assess and compare the change of psychosocial health, social support and rearing behaviour between LBC and NLBC. If the data was subject to spherical assumptions ($p>0.05$), test of within-subject effect was used, if not, multivariate test was used. Spearman's correlation was performed to identify the relationship between psychosocial health, social support and rearing behaviour in LBC. Multiple linear stepwise regression was performed to assess the impact of related variables in LBC. Variables in the model included gender, age, three domains of SSRS and three domains of s-EMBU-c. The variance inflation factor (VIF) of all variables was less than 1.3 in final model based on collinearity diagnostics. Variables such as gender, age, objective support, emotional warmth and overprotection were excluded by stepwise regression in three models.

Results

Sociodemographic characteristics

Data were obtained from 83 left-behind children and 119 non-left-behind children. There were no significant differences in age (13.5 ± 0.9 vs. 13.3 ± 1.0) and gender (boys 42.2% vs. 45.4%) between LBC and NLBC.

Psychosocial health, social support, and rearing behavior

Psychosocial health gradually increased in trend in NLBC but decreased in LBC, and there was significant difference between LBC and NLBC ($p<0.05$; Table 1). There were no significant differences in SSRS and each domain among different times between LBC and NLBC, however, general support, subject support, and support utilization of SSRS changed among different times in NLBC (no significant change in LBC). Emotional warmth gradually increased in NLBC and no significant change in LBC was noted, but in all, there was no significant difference between the two groups (Table 1).

Psychosocial health and influential factors in left-behind children

When the convergent validity between the psychosocial health, social support and rearing behaviour was analyzed in LBC, most correlation coefficients were significant except for objective

support. There was positive correlation between psychosocial health and social support (general support, subjective support and support utilization). There was positive correlation between psychosocial health and emotional warmth, and inversely, a negative correlation between psychosocial health and rejection or overprotect. The data are reported in Table 2. Multiple linear stepwise regression analyses were used to identify variables that were associated with psychosocial health in different time. The

results showed that psychosocial health was related to rejection in LBC. Psychosocial health was negatively influenced by rejection, but positively influenced by subjective support and support utilization (Table 3).

Discussion

Because the parents went out for a long time, the emotional needs of left-behind children were not met, and psychological

Table 1. Change in psychological health, SSRS and s-EMBU-c scores in left-behind children and non-left-behind children (Mean \pm standard deviation).

Variables		Time 1	Time 2	Time 3	P1	P2
Ped sQLTM 4.0						
Psychosocial health	LBC	81.82 \pm 11.37	80.63 \pm 13.45	78.42 \pm 11.92	0.02	<0.001
	NLBC	79.85 \pm 12.10	82.07 \pm 11.65	82.90 \pm 10.90	0.006	
SSRS						
General support	LBC	41.69 \pm 6.60	43.17 \pm 6.72	43.66 \pm 6.79	0.094	0.759
	NLBC	43.17 \pm 5.95	45.38 \pm 6.21	45.44 \pm 6.12	<0.001	
Objective support	LBC	9.37 \pm 2.46	9.43 \pm 2.70	9.86 \pm 2.34	0.262	0.753
	NLBC	9.54 \pm 2.57	9.90 \pm 2.72	10.06 \pm 2.57	0.176	
Subjective support	LBC	24.63 \pm 4.72	25.96 \pm 4.43	25.59 \pm 4.90	0.075	0.963
	NLBC	26.00 \pm 4.01	27.49 \pm 3.84	27.11 \pm 3.98	<0.001	
Support utilization	LBC	7.53 \pm 2.02	7.67 \pm 2.04	8.01 \pm 1.84	0.125	0.847
	NLBC	7.64 \pm 1.83	7.97 \pm 2.11	8.27 \pm 1.93	0.008	
s-EMBU-c						
Rejection	LBC	1.59 \pm 0.57	1.50 \pm 0.54	1.51 \pm 0.52	0.237	0.794
	NLBC	1.53 \pm 0.52	1.47 \pm 0.53	1.50 \pm 0.51	0.525	
Emotional warmth	LBC	2.50 \pm 0.62	2.53 \pm 0.72	2.66 \pm 0.67	0.066	0.769
	NLBC	2.55 \pm 0.63	2.65 \pm 0.67	2.74 \pm 0.64	0.008	
Overprotection	LBC	2.01 \pm 0.52	1.96 \pm 0.49	2.02 \pm 0.47	0.689	0.75
	NLBC	2.04 \pm 0.44	1.98 \pm 0.42	2.08 \pm 0.46	0.06	

Note: Repeated measurement design analysis of variance

P1: Time; P2: Group*time

Table 2. Correlation coefficients among psychosocial health, social support and rearing behavior in left-behind children.

Variables	Psychosocial health		
	Time 1	Time 2	Time 3
SSRS			
General support	0.299**	0.438**	0.232*
Subjective support	0.273*	0.491**	0.116
Objective support	0.071	0.019	0.16
Support utilization	0.368**	0.376**	0.222*
s-EMBU-c			
Rejection	-0.395**	-0.590**	-0.466**
Emotional warmth	0.117	0.264*	0.248*
Overprotection	-0.278*	-0.376**	-0.154

Note: *p<0.05, **p<0.01

Table 3. Variables associated with psychological health in left-behind children, revealed by multiple linear stepwise regression.

Psychosocial health	Independent variable	B	Beta	t	95% CI for B	VIF
Time 1	Constant	76.019	--	--	63.599 ~ 88.439	--
	Support utilization	1.662	0.295	2.806*	0.483 ~ 2.841	1.056
	Rejection	-4.229	-0.214	-2.031*	-8.372 ~ -0.086	1.056
Time 2	Constant	77.938	----	----	60.109 ~ 95.768	--
	Rejection	-13.036	-0.531	-5.995**	-17.364 ~ -8.709	1.232
	Subjective support	0.855	0.281	3.176*	0.319 ~ 1.390	1.232
Time 3	Constant	95.7	----	27.308**	88.727 ~ 102.672	--
	Rejection	-11.424	-0.501	-5.215**	-15.782 ~ -7.065	1

Note: *p<0.05, **p<0.01; B: Unstandardized Coefficients; Beta: Standardized Coefficients

VIF: Variance Inflation Factor

problems were not properly channeled, which greatly affected the hidden dangers of personality disintegration in their physical and mental health. LBC had poor self-care ability, lacked parental companionship and strict requirements in life, and were not instructed in terms of study, labour, socialization and so on. Some LBC had poor behaviour habits, and they were prone to psychological imbalances, moral misconduct, and behavioural disorder [24,25].

Our results indicated reverse development (decreasing in LBC, increasing in NLBC) in change of psychosocial health between LBC and NLBC. Sun found that about 25% of left-behind children had serious psychological problems such as irritability, and difficulty in getting along, and about 60% of LBC had introverted and inner occlusion and did not like to communicate with others; only less than 15% LBC were completely healthy and had no psychological problems (Sun, 2019). Though there were no significant differences in social support and rearing behavior among different time between LBC and NLBC, results from general support, subject support, support utilization and emotional warmth gradually increased in NLBC with no significant change in LBC. Liu et al. found that, there were significant differences in social support between LBC and NLBC, and the scores of social support, subjective support and support utilization were low among the LBC [26]. Compared to NLBC, the warm parenting style experienced by LBC was significantly lower [27]. With the length of staying time, the psychological health, social support and positive rearing behaviour of NLBC showed an upward trend, however, the LBC showed no significant change, but a downward trend in psychological health in our study.

The present results revealed that psychological health positively correlated with social support (except for objective support) and emotional warmth, and negatively correlated with rejection or overprotection in LBC (Table 2). Multiple linear stepwise regression analyses showed that psychosocial health was negatively influenced by rejection, and positively influenced by subjective support and support utilization in different times. Psychosocial health was related to rejection in each period in LBC (Table 3). LBC were suffering learning problems caused by their guardians' little involvement, living problems due to lack of emotion among family members and psychological problems from the broken family education. The reasons for these problems lay in the society, families and schools [3]. About 20% of LBC contacted their parents not more than 4 times in the past year, based on the 2018 White Paper on the Mental Status of Left-behind Children in China [28,29]. Yang et al. found that mental health of LBC was not optimistic, it was influenced both by personality traits and social support, and therefore, receiving more social support can improve their personality traits and mental health [5,9]. Children who grow up in an environment lacking the normal family atmosphere of parental care often lack security and interpersonal skills. In addition, most left-behind children showed concern about family economy and parental health, which reflected the inner pressure of LBC [3]. One study showed that stay-at-home experience influenced the mental health of LBC; the watcher should adopt supportive and warm rearing styles instead of styles of rejection, punishment,

and overprotection [26]. In order to overcome these problems, the following solutions should be commended: the gradual reduction of the urban-rural gap, the deeper participation of social forces in the aid of children, the establishment of the system for educating and guarding these children in rural areas, the reinforcement of the construction of rural boarding schools and the increase of more relevant courses in school education [25-29].

Limitations

The study only sampled two towns in this city and the sample size is not large, the results were not applicable to all aspects and could not be generalized to whole LBC in China. Other factors such as disease and sudden positive or negative events that were known as influential factors on psychological health were not measured in this research.

Conclusion

The findings of this study highlighted the differences of change of psychological health, social support and rearing behavior between the LBC and NLBC. This analysis provided additional evidence supporting that psychological health in LBC were lower than that in NLBC. Psychological health of NLBC increased with time, while LBC showed a downward trend. A positive correlation was found between psychological health and social support (except for objective support), as well as a negative correlation between psychological health and rearing behavior (rejection, overprotection). The main influential factor on psychological health was rejection.

Availability of Data and Materials

Please contact author for data requests.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

HX designed and directed the study, and analysis and interpretation of data, and drafted the manuscript. WY took the responsibility of data collection. All authors read and approved the final manuscript.

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***Correspondence to:**

Haiyan Xing
 Department of Nursing, School of Medicine
 Shaoxing University, Zhejiang Province
 P.R. China
 Tel: + 865758064138
 E-mail: petrelx99@163.com